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TRANSITION PROBABILITIES FOR STUDENT-TEACHER POPULATION  
GROWTH MODEL (DYNAMOD II).

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NATIONAL CENTER FOR EDUCATIONAL STATISTICS (DHEW)

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DIFFERENCES, \*RACIAL COMPOSITION, DROPOUTS, ELEMENTARY SCHOOL  
STUDENTS, SECONDARY SCHOOL STUDENTS, COLLEGE STUDENTS,  
ELEMENTARY SCHOOL TEACHERS, SECONDARY SCHOOL TEACHERS,  
COLLEGE TEACHERS, TABLES (DATA), \*AGE GROUPS, DISTRICT OF  
COLUMBIA, DYNAMOD II,

THIS NOTE PRESENTS THE TRANSITION PROBABILITIES  
CURRENTLY IN USE IN DYNAMOD II. THE ESTIMATING PROCEDURES  
USED TO DERIVE THESE PROBABILITIES WERE DISCUSSED IN THESE  
RELATED DOCUMENTS--EA 001 016, EA 001 017, EA 001 018, AND EA  
001 063. THE TRANSITION PROBABILITIES FOR FOUR SEX-RACE  
GROUPS ARE SHOWN ALONG WITH THE DONOR-RECEIVER CODES TO WHICH  
THEY RELATE. (HW)

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NATIONAL CENTER FOR EDUCATIONAL STATISTICS  
Division of Operations Analysis

TRANSITION PROBABILITIES  
FOR STUDENT-TEACHER POPULATION GROWTH MODEL  
(DYNAMOD II)

by

Judith R. Zinter

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## DYNAMOD II Transition Probabilities

This note presents the transition probabilities currently in use in DYNAMOD II. The various estimation procedures used to derive these probabilities are discussed in the following notes:

1. Judith R. Zinter, Estimation of Age Transition Probabilities, Technical Note Number 12, Division of Operation Analysis, National Center for Educational Statistics, U. S. Office of Education, December, 1966.
2. Edward K. Zabrowski and John T. Hudman, Dropout and Retention Rate Methodology Used to Estimate First-Stage Elements of the Transition Probability Matrices for DYNAMOD II, Technical Note Number 28, Division of Operations Analysis, National Center for Educational Statistics, U. S. Office of Education, April, 1967.
3. Edward K. Zabrowski, Methodology Used to Estimate First-Stage Elements of the Transition Probability Matrices for DYNAMOD II: Teachers and Extra-System Flows, Technical Note Number 39, Division of Operations Analysis, National Center for Educational Statistics, U. S. Office of Education, September, 1967.
4. Judith R. Zinter, Estimation of Second-Stage Dropout Rates for DYNAMOD II, Technical Note Number 40, Division of Operations Analysis, National Center for Educational Statistics, U. S. Office of Education, August, 1967

The transition probabilities for the four sex-race groups are shown in Table 1 along with the donor/receiver codes to which they relate. Taking the first few entries as an example, Table 1 should be read as follows: .0067 of those individuals in category 11 remains in category 11 the following year, .9878 of them move into category 21, and so on. An interpretation of the donor/receiver codes is given below.

<u>Donor/receiver code</u>	<u>Age group</u>	<u>Educational category</u>
11	0 - 4	Elementary school student
19	0 - 4	Other
21	5 -14	Elementary school student
22	5 -14	Secondary school student
27	5 -14	Elementary school dropout
28	5 -14	Secondary school dropout
29	5 -14	Other
31	15 -19	Elementary school student
32	15 -19	Secondary school student
33	15 -19	College student
37	15 -19	Elementary school dropout
38	15 -19	Secondary school dropout
39	15 -19	Other
41	20 -24	Elementary school student
42	20 -24	Secondary school student
43	20 -24	College student
44	20 -24	Elementary school teacher
45	20 -24	Secondary school teacher
47	20 -24	Elementary school dropout
48	20 -24	Secondary school dropout
49	20 -24	Other
51	25 -44	Elementary school student
52	25 -44	Secondary school student

<u>Donor/receiver code</u>	<u>Age group</u>	<u>Educational category</u>
53	25 - 44	College student
54	25 - 44	Elementary school teacher
55	25 - 44	Secondary school teacher
56	25 - 44	College teacher
57	25 - 44	Elementary school dropout
58	25 - 44	Secondary school dropout
59	25 - 44	Other
64	44 & over	Elementary school teacher
65	44 & over	Secondary school teacher
66	44 & over	College teacher
69	44 & over	Other
70	-	Dead

Table 1.-Transition probabilities currently in use  
in DYNAMOD II

White Males

<u>DONOR</u>	<u>RECEIVER</u>	<u>PROB.</u>	<u>DONOR</u>	<u>RECEIVER</u>	<u>PROB.</u>
11	11	.0061	31	31	.6955
	21	.9878		32	.0912
	70	.0055		37	.1615
19	11	.0178		41	.0303
	19	.1809		42	.0202
	21	.1889		70	.0013
	29	.1069	32	32	.7521
	70	.0055		33	.0985
21	21	.8738		38	.0868
	22	.0591		39	.0021
	27	.0009		42	.0125
	29	.0141		43	.0233
	31	.0078		48	.0230
	32	.0423		49	.0004
	37	.0015		70	.0013
	70	.0005	33	33	.6142
22	22	.1129		39	.0119
	28	.0100		43	.3530
	29	.1510		44	.0006
	32	.6523		45	.0040
	33	.0109		49	.0152
	38	.0156		70	.0011
	39	.0468	37	31	.0240
	70	.0005		39	.5847
27	21	.0111		41	.0060
	29	.3587		49	.3840
	31	.0189		70	.0013
	39	.6108	38	32	.0240
	70	.0005		39	.5847
28	22	.0117		42	.0060
	29	.3537		49	.3840
	32	.0183		70	.0013
	39	.6108	39	32	.0029
	70	.0005		33	.0142
29	21	.6900		39	.5516
	22	.0012		42	.0004
	29	.2714		43	.0035
	39	.0369		49	.4261
	70	.0005		70	.0013

White Males Cont'd.

<u>DONOR</u>	<u>RECEIVER</u>	<u>PROB.</u>	<u>DONOR</u>	<u>RECEIVER</u>	<u>PROB.</u>
41	41	.7056	49	42	.0001
	42	.0812		43	.0108
	47	.0131		45	.0002
	51	.1750		49	.8319
	52	.0201		53	.0024
	57	.0033		59	.1529
	70	.0017		70	.0017
42	42	.6124	51	51	.8355
	43	.0935		52	.1028
	48	.0470		57	.0558
	49	.0470		69	.0033
	52	.1606		70	.0026
	53	.0232	52	52	.7903
	58	.0073		53	.1107
	59	.0073		58	.0441
	70	.0017		59	.0442
43	43	.6142		69	.0081
	44	.0036		70	.0026
	45	.0160	53	53	.7274
	49	.1653		54	.0028
	53	.1527		55	.0189
	54	.0006		56	.0090
	55	.0040		59	.2266
	56	.0017		64	.0001
	59	.0408		65	.0011
	70	.0011		66	.0006
44	44	.7531		69	.0118
	49	.0473		70	.0017
	54	.1868	54	54	.8918
	59	.0117		59	.0574
	70	.0011		64	.0411
45	44	.0318		69	.0080
	45	.7245		70	.0017
	49	.0441	55	54	.0316
	54	.0070		55	.8639
	55	.1806		59	.0525
	59	.0109		64	.0001
	70	.0011		65	.0474
47	41	.0240		69	.0028
	49	.7746		70	.0017
	51	.0060			
	59	.1937			
	70	.0017			
48	42	.0240			
	49	.7746			
	52	.0060			
	59	.1937			
	70	.0017			

White Males Cont'd.

<u>DONOR</u>	<u>RECEIVER</u>	<u>PROB.</u>
56	54	.0005
	55	.0051
	56	.9199
	59	.0224
	64	.0001
	65	.0003
	66	.0469
	69	.0031
57	70	.0017
	51	.0300
	59	.9173
	69	.0501
58	70	.0026
	52	.0300
	59	.9173
	69	.0501
59	70	.0026
	52	.0001
	53	.0013
	54	.0001
	55	.0004
	56	.0007
	59	.9447
	69	.0501
64	70	.0026
	64	.9116
	69	.0784
	70	.0100
65	64	.0284
	65	.8869
	69	.0747
	70	.0100
66	64	.0005
	65	.0057
	66	.9039
	69	.0799
	70	.0100
69	65	.0001
	66	.0004
	69	.9677
	70	.0318
70		1.0000

## Nonwhite Females

<u>DONOR</u>	<u>RECEIVER</u>	<u>PROB.</u>	<u>DONOR</u>	<u>RECEIVER</u>	<u>PROB.</u>
11	11	.1019	31	31	.6959
	21	.8895		32	.0912
	70	.0086		37	.1442
19	11	.0342		41	.0303
	19	.7783		42	.0202
	21	.0906		47	.0174
	29	.0883		70	.0008
	70	.0086	32	32	.6841
21	21	.8739		33	.0336
	22	.0591		38	.1254
	27	.0149		39	.0842
	31	.0078		42	.0114
	32	.0423		43	.0148
	37	.0015		48	.0313
	70	.0005		49	.0144
22	22	.1026		70	.0008
	28	.0076	33	33	.6080
	29	.1602		39	.0142
	32	.5928		43	.3492
	33	.0069		44	.0060
	38	.0876		45	.0048
	39	.0418		49	.0164
	70	.0005		70	.0007
27	21	.0162	37	31	.0240
	29	.9540		39	.5838
	31	.0138		41	.0060
	39	.0155		49	.3854
	70	.0005		70	.0008
28	22	.0162	38	32	.0240
	29	.9540		39	.5838
	32	.0138		42	.0060
	39	.0155		49	.3854
	70	.0005		70	.0008
29	21	.7729	39	32	.0022
	29	.1975		33	.0031
	39	.0293		39	.6025
	70	.0005		42	.0006
				43	.0008
				49	.3900
				70	.0008

Females Cont'd.

<u>RECEIVER</u>	<u>PROB.</u>	<u>DONOR</u>	<u>RECEIVER</u>	<u>PROB.</u>
41	.7060	49	43	.0014
42	.0812		44	.0003
47	.0131		45	.0001
51	.1750		49	.8215
52	.0201		53	.0003
57	.0033		54	.0001
70	.0013		55	.0001
42	.5570		59	.1749
43	.0595		70	.0013
48	.0564	51	51	.8361
49	.1274		52	.1029
52	.1536		57	.0540
53	.0147		69	.0031
58	.0141		70	.0039
59	.0160	52	52	.7573
70	.0013		53	.0704
43	.6081		58	.0705
44	.0242		59	.0850
45	.0194		69	.0129
49	.1485		70	.0039
53	.1507	53	53	.7201
54	.0060		54	.0287
55	.0048		55	.0229
56	.0010		56	.0049
59	.0366		59	.2085
70	.0007		64	.0015
44	.7342		65	.0012
49	.0666		66	.0002
54	.1820		69	.0107
59	.0165		70	.0013
70	.0007	54	54	.8695
44	.0424		59	.0808
45	.6942		64	.0443
49	.0642		69	.0041
54	.0105		70	.0013
55	.1721	55	54	.0502
59	.0159		55	.8221
70	.0007		59	.0779
41	.0240		64	.0026
49	.7993		65	.0419
51	.0060		69	.0040
59	.1694		70	.0013
70	.0013			
42	.0240			
49	.799			
52	.0060			
59	.1694			
70	.0013			

Nonwhite Females Cont'd.

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<u>DONOR</u>	<u>RECEIVER</u>	<u>PROB.</u>
56	54	.0096
	55	.0065
	56	.8996
	59	.0346
	64	.0005
	65	.0003
	66	.0442
	69	.0034
	70	.0013
<hr/>	57	.0300
	59	.9178
	69	.0483
	70	.0039
<hr/>	58	.0300
	59	.9178
	69	.0483
	70	.0039
<hr/>	59	.0002
	54	.0004
	55	.0002
	56	.0002
	59	.9468
	69	.0483
	70	.0039
<hr/>	64	.8934
	69	.0926
	70	.0140
<hr/>	65	.0516
	65	.8447
	69	.0897
	70	.0140
<hr/>	66	.0098
	65	.0067
	66	.8914
	69	.0781
	70	.0140
<hr/>	69	.0003
	65	.0003
	66	.0001
	69	.9731
	70	.0262
<hr/>	70	1.0000

## Nonwhite Males

<u>DONOR</u>	<u>RECEIVER</u>	<u>PROB.</u>	<u>DONOR</u>	<u>RECEIVER</u>	<u>PROB.</u>
11	11	.0443	31	31	.6953
	21	.9450		32	.0912
	70	.0107		37	.1440
19	11	.0249		41	.0303
	19	.7789		42	.0202
	21	.0857		47	.0174
	29	.0993		70	.0016
	70	.0107	32	32	.7520
21	21	.8737		33	.0535
	22	.0591		38	.0869
	27	.0048		39	.0470
	29	.0100		42	.0124
	31	.0078		43	.0232
	32	.0424		48	.0117
	37	.0015		49	.0117
	70	.0007		70	.0016
22	22	.1129	33	33	.6140
	28	.0454		39	.0118
	29	.1156		43	.3527
	32	.6523		44	.0009
	33	.0109		45	.0040
	38	.0513		49	.0152
	39	.0109		70	.0014
	70	.0007	37	31	.0240
27	21	.0240		39	.5841
	29	.6785		41	.0060
	31	.0060		49	.3843
	39	.2908		70	.0016
	70	.0007	38	32	.0240
28	22	.0240		39	.5841
	29	.6785		42	.0060
	32	.0060		49	.3843
	39	.2908		70	.0016
	70	.0007	39	32	.0035
29	21	.7966		33	.0032
	29	.1905		39	.6014
	39	.0122		43	.0008
	70	.0007		49	.3895
				70	.0016

## Nonwhite Males Cont'd.

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<u>DONOR</u>	<u>RECEIVER</u>	<u>PROB.</u>	<u>DONOR</u>	<u>RECEIVER</u>	<u>PROB.</u>
41	41	.7051	49	43	.0035
	42	.0811		44	.0003
	47	.0131		45	.0001
	51	.1740		49	.8184
	52	.0201		53	.0009
	57	.0032		59	.1740
	70	.0028		70	.0028
42	42	.6119	51	51	.8348
	43	.0934		52	.1027
	48	.0470		57	.0534
	49	.0470		69	.0030
	52	.1602		70	.0061
	53	.0231	52	52	.7889
	58	.0073		53	.1106
	59	.0073		58	.0434
	70	.0028		59	.0434
43	43	.6138		69	.0076
	44	.0036		70	.0051
	45	.0160	53	53	.7267
	49	.1658		54	.0043
	53	.1520		55	.0189
	54	.0009		56	.0071
	55	.0040		59	.2272
	56	.0015		64	.0002
	59	.0410		65	.0010
	70	.0014		66	.0004
44	44	.7525		69	.0114
	49	.0479		70	.0028
	54	.1863	54	54	.8910
	59	.0119		59	.0586
	70	.0014		64	.0447
45	44	.0317		69	.0029
	45	.7239		70	.0028
	49	.0448	55	54	.0376
	54	.0079		55	.8572
	55	.1792		59	.0548
	59	.0111		64	.0019
	70	.0014		65	.0430
47	41	.0240		69	.0027
	49	.7983		70	.0028
	51	.0060	56	54	.0009
	59	.1689		55	.0051
	70	.0028		56	.9136
48	42	.0240		59	.0300
	49	.7983		65	.0003
	52	.0060		66	.0443
	59	.1689		69	.0030
	70	.0028		70	.0028

## Nonwhite Males Cont'd.

<u>DONOR</u>	<u>RECEIVER</u>	<u>PROB.</u>
57	51	.0300
	59	.9164
	69	.0475
	70	<u>.0061</u>
58	52	.0300
	59	.9164
	69	.0475
	70	<u>.0061</u>
59	53	.0007
	54	.0001
	55	.0003
	56	.0002
	59	.9451
	69	.0475
	70	<u>.0061</u>
64	64	.9084
	69	.0756
	70	<u>.0160</u>
65	64	.0383
	65	.8738
	69	.0719
	70	<u>.0160</u>
66	64	.0010
	65	.0052
	66	.9007
	69	.0771
	70	<u>.0160</u>
69	64	.0001
	66	.0003
	69	.9644
	70	<u>.0352</u>
70	70	1.0000

## White Females

<u>DONOR</u>	<u>RECEIVER</u>	<u>PROB.</u>	<u>DONOR</u>	<u>RECEIVER</u>	<u>PROB.</u>
11	11	.0068	31	31	.6958
	21	.9890		32	.0912
	70	.0042		37	.1436
19	11	.0175		41	.0304
	19	.7823		42	.0202
	21	.0893		47	.0183
	29	.1067		70	.0005
	70	.0042	32	32	.6943
21	21	.8741		33	.0759
	22	.0591		38	.1047
	27	.0018		39	.0576
	29	.0131		42	.0114
	31	.0078		43	.0148
	32	.0423		48	.0262
	37	.0015		49	.0146
	70	.0003		70	.0005
22	22	.1027	33	33	.6078
	28	.0119		39	.0142
	29	.1558		43	.3514
	32	.6001		44	.0060
	33	.0089		45	.0048
	38	.0320		49	.0154
	39	.0883		70	.0004
	70	.0003	37	31	.0240
27	21	.0162		39	.5842
	29	.8904		41	.0060
	31	.0138		49	.3853
	39	.0793		70	.0005
	70	.0003	38	32	.0240
28	22	.0081		39	.5842
	29	.8985		42	.0060
	32	.0219		49	.3853
	39	.0712		70	.0005
	70	.0003	39	32	.0026
29	21	.7191		33	.0114
	22	.0012		39	.6142
	29	.2050		42	.0006
	32	.0001		43	.0022
	39	.0743		49	.3685
	70	.0003		70	.0005

## White Females Cont'd.

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<u>DONOR</u>	<u>RECEIVER</u>	<u>PROB.</u>	<u>DONOR</u>	<u>RECEIVER</u>	<u>PROB.</u>
41	41	.7059	48	42	.0240
	42	.0812		49	.7992
	47	.0131		52	.0060
	51	.1757		59	.1702
	52	.0202		70	.0006
	57	.0033	49	43	.0028
	70	.0006		44	.0009
42	42	.5569		45	.0003
	43	.0595		49	.8192
	48	.0343		53	.0007
	49	.1495		54	.0001
	52	.1542		55	.0001
	53	.0148		59	.1753
	58	.0086		70	.0006
	59	.0216	51	51	.8363
	70	.0006		52	.1250
43	43	.6080		57	.0339
	44	.0272		69	.0034
	45	.0194		70	.0014
	49	.1451	52	52	.7625
	53	.1514		53	.0704
	54	.0060		58	.0429
	55	.0048		59	.1092
	56	.0010		69	.0136
	59	.0367		70	.0014
	70	.0004	53	53	.7203
44	44	.7691		54	.0287
	49	.0313		55	.0229
	54	.1827		56	.0049
	59	.0165		59	.2085
	70	.0004		64	.0015
45	44	.0424		65	.0012
	45	.6941		66	.0002
	49	.0638		69	.0112
	54	.0106		70	.0006
	55	.1728	54	54	.8697
	59	.0159		59	.0791
	70	.0004		64	.0464
47	41	.0240		69	.0042
	49	.7992		70	.0006
	51	.0060	55	54	.0502
	59	.1702		55	.8223
	70	.0006		59	.0766
				64	.0027
				65	.0435
				69	.0041
				70	.0006

<u>DONOR</u>	<u>RECEIVER</u>	<u>PROB.</u>
56	54	.0056
	55	.0065
	56	.9053
	59	.0269
	64	.0015
	65	.0003
	66	.0493
	69	.0005
	70	.0006
57	51	.0300
	59	.9180
	69	.0506
	70	.0014
58	52	.0300
	59	.9180
	69	.0506
	70	.0014
59	52	.0001
	53	.0002
	54	.0004
	55	.0003
	56	.0003
	59	.9467
	69	.0506
	70	.0014
64	64	.9065
	69	.0365
	70	.0070
65	64	.0518
	65	.8681
	69	.0731
	70	.0070
66	64	.0099
	65	.0067
	66	.9448
	69	.0316
	70	.0070
69	64	.0006
	65	.0005
	66	.0001
	69	.9766
	70	.0222
70	70	1.0000